International Education Studies
www.ccsenet.org/journal.html
Vol. 2, No. 1
February 2009

Improvement of Faculty's Qualities in Medical Colleges and the Construction of a "Five-in-one" Cultivation System under the Pattern of PBL

Qin Chen, Hang Li, Fancai Zeng, Xiaorong Zeng, Lige Zheng & Xiang Li
luzhou Medical College
Luzhou 646000, China
Tel: 86-830-316-2279 E-mail: zwxin626@163.com

Abstract

The instructional pattern of Problem-based Learning, which requires teachers to be "organizers, guides and cooperators" of their students' learning, is now becoming a trend in the development of medical education around the world. In order to be competent in all the above mentioned roles, teachers need to be equipped with corresponding qualities. In this article, basic qualities under the ideal PBL conditions are summarized from relevant literatures and teachers' practical ability was also understood through analysis of requirements. Then the difference between the ideals and reality was discovered, also a question data base was set up accordingly as the starting point to train teachers and seek a solution to intrigue them to implement PBL. Thus, a teachers' training system of "Five in One", the integration of requirement analysis, objectives setting, methods selection, content design and quality assurance, was constructed.

Keywords: PBL, Medical colleges, Teachers' training

PBL, a study style based on questions, was pioneered and used at McMaster University Canada, by Mr. Barrows, Professor of Neurology in America. It emphasizes analyzing and working out problems by applying knowledge and aims at learners' construction of abundant and flexible foundations of knowledge, their developing effective problem-solving abilities, their development of both autonomic and lifetime- learning abilities as well as becoming effective cooperators and finally cultivating the internal motive for study. It is now recognized as one of the excellent teaching methods to promote students' critical thinking and to analyze and solve problems[1].

The pattern of problem-based learning has taken prominence and accumulated some experience in China, however it has not been spread substantively across the whole country yet. It might be because of the following problems: (1) inadequate knowledge; (2) insufficient resources such as insufficient collection of books in the library; poor-use of internet resources; lack of new material aimed at PBL; deficient experimental equipment; inadequate professional trainers[1-7]; (3) teachers' Inadequate abilities of PBL instructional mode;(4)difficulty for students to adopt and difficulty of quality assessment. Accordingly, this article focuses on the quality and requirement of medical college teachers under the pattern of PBL and the establishment of the "five in one" teacher training system based on existing problems and teaching practice of our school, in order to improve the instructional ability of teacher on the method of PBL .

1. The Necessity of Implementing PBL and training teachers accordingly

1.1 The Need to Adapt to the Reformation of International Medical Education

Edinburgh Declaration, passed at the Edinburgh Conference of 1988 by World Federation of Medical Education (WFME), and Global Minimum Essential Requirements in Medical Education, passed in April of 2002 by Institute for International Medical Education (IIME), have both pointed out the objectives for medical education is to create trained doctors to possess not only excellent qualities and professional ethics, but also a great deal of abilities of both raising and solving clinical problems, especially problem- solving ability. The goals for contemporary medical students are clearly defined by all these international standards in international use. Practice has proved that problem-based learning can accomplish these objectives far better than the traditional teaching-oriented learning.

1.2 The Need to Adapt to the Requirements for Teachers' Basic Qualities

In the PBL pattern, the teacher's role has changed from traditional instructor to "promoters and guides", therefore, teachers should be highly capable of: Comprehending previously-learned experience and thinking of students; Creating a context to provide a link between the new and old knowledge; Designing teaching procedures or designing study situations; applying freely modern information technology; developing learners' multi-cognition and self–adjustment abilities; having effective communication and management of conflicts; having acute observation as well as excellent self-knowledge and evaluation; guiding students to learn and work with others; and arousing students' interests to study in an exploratory way.

1.3 From above, we know that PBL is different from the traditional instructional pattern and has a higher demand of teachers. However, since teachers are basically products of the latter pattern, and compared with their counterparts from other kinds of college, most medical teachers begin teaching upon gradation without receiving any professional training, hence, they must have the corresponding qualities by means of cultivation and training. According to Marx's theory, "Educators should be the first to be educated", this is one of the problems for contemporary application of PBL. How to systematically train teachers at medical colleges and improve their teaching abilities is of great significance both theoretically and practically [2].

2. The Construction of a "Five-in-one" Cultivation System

The practice in our college proves that the construction of "Five in One" system is an important means to improving the qualities of teachers, which connotes a cultivation system for teachers with the collaboration of systematic methods, as well as requirement analysis, objectives setting, methods selection, content design and quality assurance. The content is as follows:

2.1 The System of Requirement Analysis

Demand is a driving force for non-stop study and progress. Only Aiming for the objectives, which are requested specifically, are approved and improved by highly teachers.

Firstly, to target the group of students in the PBL pattern, a model of "3.5+1+0.5" for clinical cultivation at our college has been adopted; that is, three and a half years for their elementary courses, clinical theory lessons as well as those on probation, one year for their clinical practice and the last half for clinical Forums and Lectures back to school. This mode offers a suitable environment for our application of PBL in the advanced period; our college therefore decided to employ the pattern of PBL in the clinical Forums and Lectures and has acquired favorable experience to a fair extent.

Secondly, to analyze teachers' basic qualities for PBL. By Analyzing the implementation situation, existing problems, ideal conditions and the difference between the actualities and reality in a variety ways such as classroom observation, interviews arranging, organization analysis, questionnaire surveys and teaching contests, solution to problem and assessment of PBL application are put forward.

2.2 Objectives System for Cultivation

The objective is to cultivate teachers' basic abilities in accordance with PBL's requirements, to solve their problems with PBL application so as to promote their competence in PBL-applied teaching and finally to boost the development of colleges. According to an analysis of the requirements and supported by systematical methods, It has been determined as an effective measure to ensure positive results.

2.3 Methods ---- To Form a 3-level Cultivation Model of "Noted Teachers- Mainstay Teachers-Young Teachers"

Noted teachers were sent out to places both domestically and abroad to receive systematic training of PBL in a batch-wise way. Then they trained all the other teachers, especially the mainstays, after they came back to their colleges with excellent results. Likewise, the core teachers would cultivate the young teachers, thus a 3-level pattern is formed. During the procedure, teachers from all levels collaborate and discuss together; and with the leadership of noted teachers, the trained teachers experience the process of PBL from the students' point of view to create a favorable atmosphere for young teachers and hence accelerate their development and also ensure PBL's smooth application. Three concrete ways can be taken, as shown in Figure 1.

2.3.1 The first level is to build a problem data base for PBL teachers training. The so-called "problem data base" mainly refers to a form to supply problem resources to the facilitation of PBL cultivation. A problem data base, including questions from several fields, is defined clearly from analysis of the practice of teachers from the 3-level. There are corresponding theories in each field of problems and several highly influential ones are chosen to design the plan of cultivation.

2.3.2 Under the leadership of construction of PBL teachers, and based on the seeking for a solution to the real problems of applying PBL, a special fund was established for teaching innovation in order to set up several general research projects in accordance with specific medical subjects. Each general project is followed by a few sub-projects. Noted

teachers are the overall leaders and mainstay teachers are responsible for the sub-projects .In addition, all the young teachers are group members, thus a powerful team of PBL research is formed. Each member has his concrete assignment to ensure the implementation of each project. The teachers' professional abilities are strengthened through actions and their ideas would be changed to fully demonstrate their specialties and enhance their spirit of collaboration, as well as, to improve their abilities to reform and research.

2.3.3 PBL Cultivation for Teachers is Developed under Internet Circumstance with the Carrier of Information Technology

2.3.3.1 To Build PBL Internet Classrooms

PBL Internet Classrooms are a platform to support Internet education based on PBL theories, computer and communication technology. In such a virtual environment, both teachers and students can carry out all kinds of teaching activities as freely as in a real classroom. Noted teachers—mainstay teachers—young teachers form a learning community in virtual space, and students' activities are no longer restrained to the traditional classroom. Instead, they are in a learning group with a teacher's guidance, help, cooperation and communication. This platform strengthens communication among teachers from all levels and results in timely appraisal.

2.3.3.2 A Bank of PBL Classroom Teaching Cases Established by Using an Network Monitor System

Practical experience is an important resource for their training, so content and material can be theoretical but it must be closely combined with practice. Through the Network Monitor System, the classroom teaching by teachers especially renowned ones, are videotaped to pick up typical cases for the construction of a quintessential resources data base. The classroom video mirrors real situations for problems and enables teachers to objectively evaluate their teaching effect, to find out the difference between ideals and reality so as to find a solution. It also provides important resources for training improvement; thereby, entitling the evaluation of training to get real information and drawing a correct conclusion from it.

2.4 Content of System

Based on the basic qualities required for PBL, teachers' training was mainly targeted in four aspects: cultivation of ideas and concepts; cultivation of knowledge including noumenal, situational and practical knowledge; training Skills; and training attitude.

2.5 System of Quality Assurance

Our college established an organization of intra-control as a priority, extra-control as guidance, and a mechanism of management; set up an administration team with the leadership of the president, a PBL teachers' training team orientated towards noted and mainstay teachers; built an institution for special fund for training and also for reward or punishment; and constructed a result evaluation mechanism for both long-term and short-term.

3. Consideration/Reflection

3.1 Result of "Five in One" PBL training

The system of "Five in One" overcame the deficiency of traditional teachers' training and promoted teachers' research ability, Young teachers were therefore prepared for research and teaching reform. It also innovated the teachers' training pattern at medical colleges, improved teachers' capability of implementing PBL, boosted their capacity of problem solving and lifetime studying.

3.2 Deficiency

3.2.1 The quality of problems designed needs improvement

Whether teachers can design appropriate problems is a prerequisite to context creating. In our practice, we found teachers were sometimes unable to do so because the quality of problems lies in their command of knowledge and its structure, and their grasp and instruction of students' mode of thinking, which is demanding for teachers.

3.2.2 Teachers' under-dedication

PBL requires teachers to devote more energy and time and the workload would be heavy, so it would take them some time to accept this mentally.

3.2.3 Orientation to exploration.

The PBL teachers' training system at medical colleges is entrusted with a major mission. It is our direction to work hard; hereafter, we will set up a question database of high quality, we hire teachers with enthusiasm for applying PBL with all measures taken, and we will explore school-based in service training.

References

Admin, Carol EdD. (2003). A Comparison of Critical Thinking in Groups of Third-year Medical Students in Text, Video,

and Virtual PBL Case Modalities, *Acad Med*., 78:204-211.

Aldred MJAldred SE. (1998). Problem-based learning: the good, the bad, and the ugly. J Dent Educ, Sep, 62(9): 650-655.

Huda NBrula AQ. (1999). An introductory course on study skills forming a bridge between traditional and problem-based learning. J Pak Med Assoc 1999 Feb, 49(2): 27-30.

Problem-based learning, especially in the context of large classes http://www.chemengmcmaster.ca /pbl/pbl.htm.

Problem-based learning, http://www.c2t2.cal/lo/pbl.html.

Technologic Systemic Educational Reform, http://www.tecweb.org/eddevvl.

Wood, Diana F. (2003). Problem based learning: Clinical review: ABC of learning and teaching in medicine, *British Medical Journal* , 326 (7348): 328-330.

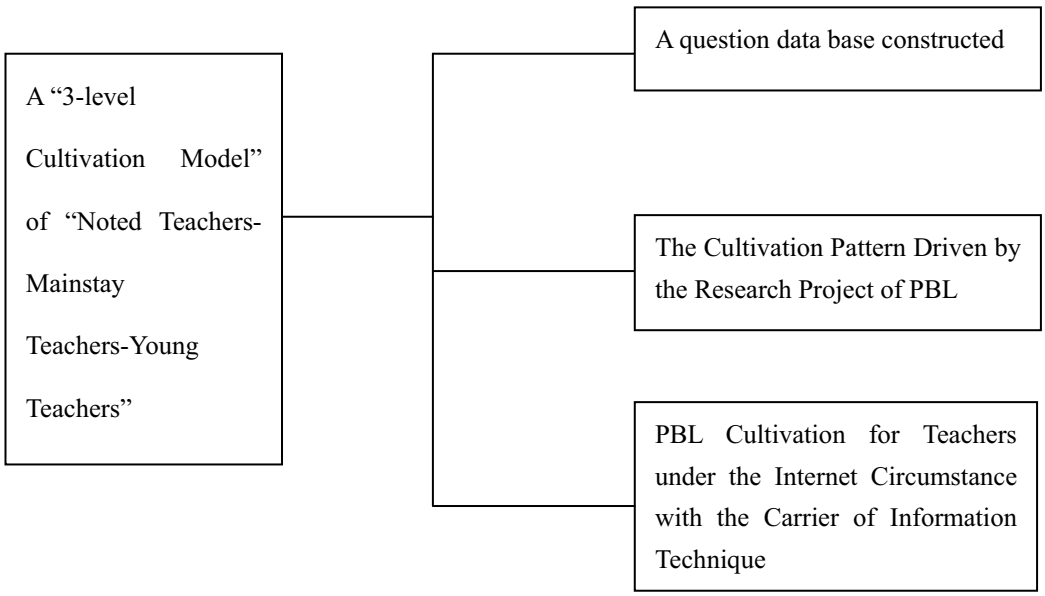

Figure 1. A 3-level Cultivation Model